

Amendments to the Drawings:

The attached sheets of drawings include changes to Figs 3-4, which replace the original sheets including Figs 3-4.

Attachment: Replacement sheets (2)

Annotated sheets showing changes (2)

REMARKS/ARGUMENTS

This communication is responsive to Office Action of October 4, 2004 in which the following objections were raised: [3-4] The drawings were objected to by the Examiner. Corrective actions were required; [5-7] The specification was objected to by the Examiner. Corrective action was required; [8-9] Claims 2, 10 and 6 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention; [10-11] Claims 2-4, 10-13 and 18-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Mannering et al. (6,137,839) in view of Verbin et al. (6,411,657); and [12] Claims 5-9, 14-17 and 21 were rejected under 35 U.S.C. 103(a) as being unpatentable over Mannering et al. (6,137,839) in view of Verbin et al. (6,411,657) in further view of Matsumoto (PG-PUB 2002/0067811).

Applicant has amended Claims 2-4 and 8 and canceled Claims 5-7 and 9-21.

3-4. DRAWING OBJECTIONS:

The Examiner objected to Figs 1 and 2 as lacking a legend "Prior Art".

Applicant respectfully rejects the Examiner's characterization of FIGS. 1 and 2 as prior art. FIG. 1 show the overall environment in which the current invention may be practiced and in which support for multiple channels having differing modulation protocols may be achieved with the single multi-protocol modem concurrently supporting multiple communication channels having different modulation protocols. FIG. 2 is a high level block diagram of one of the Applicant's inventive packet based modems. The Applicant therefore respectfully requests that the Examiner withdraw the objection as to Claims 1 and 2.

The Examiner objected to Figures 3 and 4 in which the "TX" and "RX" labels were reversed.

The Applicant has made correction to the above-mentioned figures as required.

5-7. SPECIFICATION OBJECTIONS

The Examiner objected to the Abstract and to portions of the specification.

The Applicant has made the corresponding amendments to the Abstract and the specification. Additionally the Applicant has after review of the Specification made additional amendments to correct errors therein.

The Applicant therefore respectfully requests that the objections to the specification be withdrawn.

8-9. CLAIMS 2, 10 and 6 REJECTED UNDER 35 U.S.C. 112:

Claims 2, 10 and 6 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has and canceled Claims 6 and 10. Applicant has amended Claim 2 to clarify that the components handle DMT and CAP line codes. The objected to language as to base-to-carrier band has been deleted. The phrase 'vice-versa' has been deleted.

Applicant therefore respectfully requests that the Examiner withdraw the rejections under 35 U.S.C. 112.

10-11. CLAIMS 2-4, 10-13 AND 18-20 REJECTED UNDER 35 U.S.C. 103(a):

Claims 2-4, 10-13 and 18-20 were rejected under 35 U.S.C. 103(a) as being unpatentable over Mannering et al. (6,137,839) in view of Verbin et al. (6,411,657). The Examiner has characterized the Manning reference as teaching "*a fourier transform engine ...operating as a base-to-carrier band converter and vice versa for digital data encoded in the DMT line code and as a filter for the digital data encoded with the CAP line code.*" (Office Action of 10/04/2004 at page 6 citing Mannering Figs. 4a-4b and associated text)

The Applicant respectfully rejects this characterization of the Mannering reference. The Mannering reference discloses a programmable DSP which may be set up to supporting either the processes associated with the traditional DMT architecture shown in Mannering's FIG. 4a or the traditional architecture associated with CAP line codes and shown in Mannering's FIG. 4b. The CAP architecture shown in Mannering's FIG. 4b does not include a Fourier transform processes or component. Thus absent any teaching to the contrary in the remainder of the specification it must be presumed that Mannering's DSP may be programmed to mimic the processes inherent in the component architecture shown in FIG. 4b when operating as a dedicated CAP modem.

The Applicant's invention by contrast teaches repurposing of the components, specifically the Fourier transform component, of a modem architecture traditionally associated with DMT modulation to also handle either concurrently or in the alternative a CAP modulated communication channel. Indeed the Mannering reference teaches away from such architecture by providing the totally different architectures shown in Mannering's FIGS. 4a and 4b for handling DMT or CAP line codes.

The Verbin reference teaches only a CAP single-carrier architecture with no mention of a Fourier transform component therein.

Neither of the references singly or in combination teaches or suggests a Fourier transform component servicing channels encoded in DMT or CAP line codes. This limitation is found in Applicant's amended Independent Claim 2 as well as the remaining rejected Claims dependent thereon. The Applicant therefore respectfully submits that Claims 2-4 have been placed in a condition for allowance.

12. CLAIMS 5-9, 14-17 AND 21 REJECTED UNDER 35 U.S.C. 103(a):

Claims 5-9, 14-17 and 21 were rejected under 35 U.S.C. 103(a) as being unpatentable over Mannering et al. (6,137,839) in view of Verbin et al. (6,411,657) in further view of Matsumoto (PG-PUB 2002/0067811).

Examiner has cited Mannering in view of Verbin as disclosing an XDSL modem for transmitting and receiving signals with multiple modulation schemes including DMT and CAP. The Applicant additionally rejects this characterization of the Verbin reference.

The Verbin reference discloses a DMT modem only. There is no mention in the entire Verbin specification of support for a communication channel requiring CAP modulation. Applicant has amended the remaining rejected Claim 8 under this paragraph to depend from Claim 2. Applicant therefore respectfully submits that Claim 8 has been placed in a condition for allowance both by virtue of its dependence from amended Independent Claim 1 as well as for other reasons of Independent significance.

CONCLUSION

In view of the above remarks, and the amendments to the Claims, Applicant respectfully submits that all remaining Claims 2-4 and 8 have been placed in a condition for allowance, and requests that they be allowed. Early notice to this effect is solicited.

The Commissioner is authorized to charge any additional fees which may be required, including petition fees and extension of time fees, to Deposit Account No. 50-1338 (Docket No. VELCP001X3).

Respectfully submitted,

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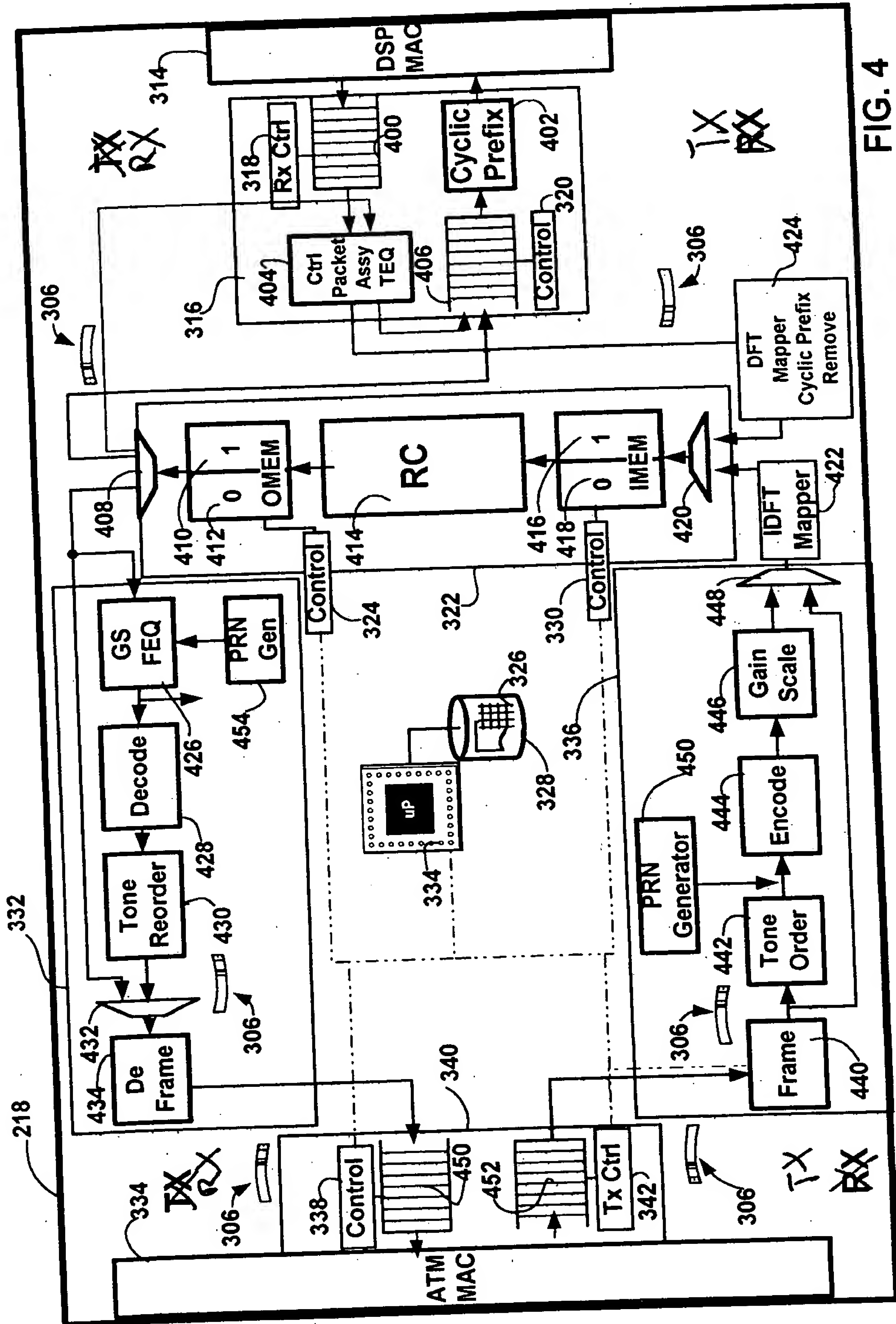


FIG. 4

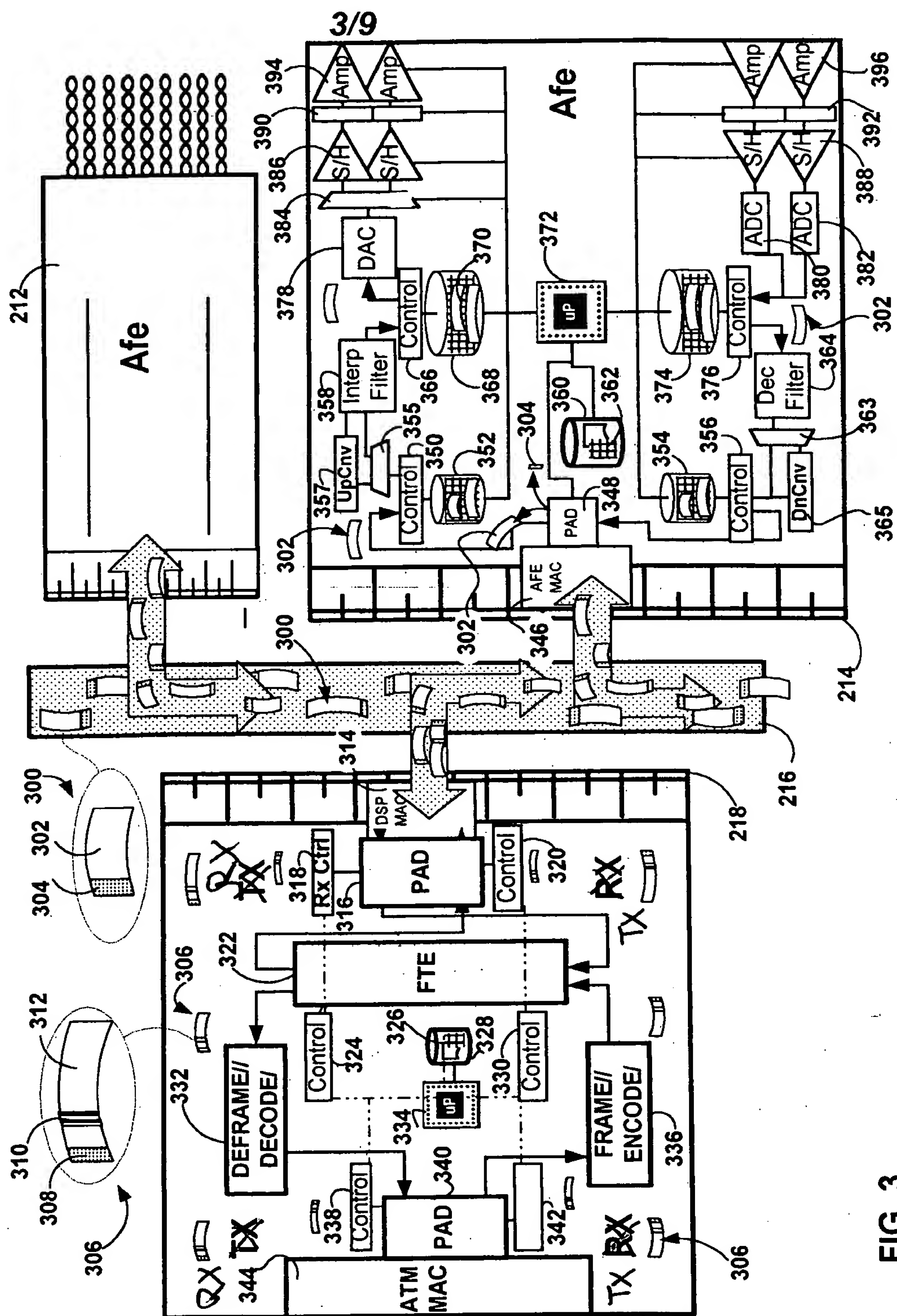


FIG. 3